

## SECTION II—CLAIMS

1. (Currently Amended) An optical communication system, comprising:
  - an optical transmitter comprising:
    - an error correction encoder, wherein the error correction encoder outputs data that is encoded according to an error correction ~~code~~ algorithm selected by the encoder from a predetermined set of error correction ~~codes~~ algorithms having differing data transfer rates, and
    - a laser/driver unit coupled to the error correction encoder, wherein the laser/driver unit transmits optical signals modulated with data from the error correction encoder; and
  - an optical receiver comprising:
    - an optical detector/amplifier to receive optical signals, and
    - an error correction decoder coupled to the optical detector/amplifier, wherein the error correction decoder decodes data according to the error correction ~~code~~ algorithm selected in the error correction encoder.
2. (Previously Presented) The system of claim 1, wherein the optical receiver further includes an error rate indicator, wherein the error rate indicator provides an indication of an error rate of an optical signal received by the optical receiver.
3. (Original) The system of claim 2, wherein the error rate indicator is coupled to the optical detector/amplifier.
4. (Previously Presented) The system of claim 2, wherein the error rate indicator provides an indication of a power level of the optical signal received by the optical receiver.
5. (Previously Presented) The system of claim 2, wherein the optical receiver further provides information related to the error rate indication from the error rate indicator to the optical transmitter.
6. (Currently Amended) The system of claim 5, wherein the error correction encoder further selects an error correction ~~code~~ algorithm of the predetermined set of error correction ~~codes~~ algorithms in dependence on the information related to the error rate indication.

7. (Previously Presented) The system of claim 6, wherein the optical receiver and the optical transmitter each include a synchronization unit, the synchronization units of the optical transmitter and the optical receiver providing a communication link between the optical transmitter and the optical receiver that is separate from optical signals transmitted by the optical transmitter and optical signals received by the optical receiver, and the optical receiver using the communication link provided by the synchronization units to provide the information related to the error rate indication to the optical transmitter.
8. (Original) The system of claim 6, wherein the optical receiver is part of an optical transceiver.
9. (Previously Presented) The system of claim 8, wherein the optical transceiver further provides the information related to the error rate indication to the optical transmitter via an optical signal sent to another optical transceiver that includes the optical transmitter.
10. (Previously Presented) The system of claim 9, wherein the optical signal sent by the optical transceiver includes a single frequency tone waveform to provide the error rate indication to the optical transmitter.
11. (Currently Amended) The system of claim 1, wherein the predetermined set of error correction code algorithms includes a selection of no error correction encoding.
12. (Original) The system of claim 2, wherein the error rate indicator is implemented using the error correction decoder.
13. (Currently Amended) An optical communication system, comprising:

an optical transmitter, wherein the optical transmitter includes error correction encoder means for encoding data according to an error correction code algorithm selected by the encoder from a predetermined set of error correction codes algorithms having differing data transfer rates; and

an optical receiver operatively coupled to the optical transmitter, wherein the optical receiver includes error correction decoder means for decoding data according to the error correction code algorithm selected in the error correction encoder.

14. (Previously Presented) The system of claim 13, wherein the optical receiver further includes an error rate indicator, wherein the error rate indicator provides an indication of an error rate of an optical signal received by the optical receiver.
15. (Original) The system of claim 14, wherein the error rate indicator is coupled to an optical detector/amplifier of the optical receiver.
16. (Previously Presented) The system of claim 14, wherein the error rate indicator provides an indication of a power level of the optical signal received by the optical receiver.
17. (Previously Presented) The system of claim 14, wherein the optical receiver further provides information related to the error rate indication from the error rate indicator to the optical transmitter.
18. (Currently Amended) The system of claim 17, wherein the error correction encoder means selects an error correction ~~code~~ algorithm of the predetermined set of error correction ~~codes~~ algorithms in dependence on the information related to the error rate indication.
19. (Previously Presented) The system of claim 18, wherein the optical receiver and the optical transmitter each include synchronization means for providing a communication link between the optical transmitter and the optical receiver that is separate from optical signals transmitted by the optical transmitter and optical signals received by the optical receiver, the optical receiver using the synchronization means to provide the information related to the error rate indication to the optical transmitter.
20. (Original) The system of claim 18, wherein the optical receiver is part of an optical transceiver.
21. (Previously Presented) The system of claim 20, wherein the optical transceiver further provides the information related to the error rate indication to the optical transmitter via an optical signal sent to another optical transceiver that includes the optical transmitter.
22. (Previously Presented) The system of claim 21, wherein the optical signal sent by the optical transceiver uses a single frequency tone waveform to provide the error rate indication to the optical transmitter.

23. (Currently Amended) The system of claim 13, wherein the predetermined set of error correction ~~codes~~ algorithms includes a selection of no error correction encoding.
24. (Original) The system of claim 14, wherein the error rate indicator is implemented using the error correction decoder.
25. (Currently Amended) An optical transceiver for use in a communication system, the optical transceiver comprising:
- an error correction encoder, wherein the error correction encoder outputs data that is encoded according to an error correction ~~code~~ algorithm selected by the encoder from a predetermined set of error correction ~~codes~~ algorithms having differing data transfer rates, the predetermined set also including a selection of no error correction encoding;
  - a laser/driver unit coupled to the error correction encoder, wherein the laser/driver unit transmits optical signals modulated with data from the error correction encoder;
  - an optical detector/amplifier to receive optical signals; and
  - an error correction decoder coupled to the optical detector/amplifier, wherein the error correction decoder decodes data according to an error correction ~~code~~ algorithm selected from the predetermined set of error correction codes.
26. (Previously Presented) The optical transceiver of claim 25, further comprising an error rate indicator, wherein the error rate indicator provides an indication of an error rate of an optical signal received by the optical transceiver.
27. (Original) The optical transceiver of claim 26, wherein the error rate indicator is coupled to the optical detector/amplifier.
28. (Previously Presented) The optical transceiver of claim 26, wherein the error rate indicator provides an indication of a power level of the optical signal received by the optical transceiver.
29. (Original) The optical transceiver of claim 26, wherein information related to the error rate indication from the error rate indicator is provided to the error correction encoder.
30. (Currently Amended) The optical transceiver of claim 29, wherein the error correction encoder ~~to~~ further selects an error correction ~~code~~ algorithm of the predetermined set of

error correction ~~codes~~ algorithms in dependence on the information related to the error rate indication.

31. (Previously Presented) The optical transceiver of claim 29, wherein the optical transceiver further provides the information related to the error rate indication to another optical transceiver via an optical signal sent to the other optical transceiver, the other optical transceiver being the source of the received optical signal.
32. (Previously Presented) The optical transceiver of claim 31, wherein the optical signal sent by the optical transceiver to the other optical transceiver includes a single frequency tone waveform to provide the error rate indication to the optical transmitter.
33. (Original) The optical transceiver of claim 25, wherein the error correction encoder comprises a field programmable gate array.
34. (Original) The optical transceiver of claim 33, wherein the field programmable gate array is dynamically reprogrammable to encode data according to an error correction code selected from the predetermined set of error correction codes.
35. (Currently Amended) A method for use in an optical communication system, the method comprising:
  - measuring a parameter of an optical signal received in the optical communication system, wherein the parameter is indicative of an error rate of data contained in received optical signals;
  - selecting an error correction ~~code~~ algorithm from a predetermined set of error correction ~~codes~~ algorithms based on the measurement; and
  - configuring the optical communication system to use the selected error correction ~~code~~ algorithm.
36. (Currently Amended) The method of claim 35 wherein the predetermined set of error correction ~~codes~~ algorithms includes a selection of no error correction coding.
37. (Original) The method of claim 35, wherein the parameter is a power level of received optical signals.

38. (Original) The method of claim 35 wherein configuring the optical communication system to use the selected error correction code comprises:

encoding data to be transmitted in an optical signal according to the selected error correction code;

providing to an intended receiver of the optical signal an indication of the selected error correction code; and

transmitting the encoded data.

39. (Currently Amended) The method of claim 35 wherein configuring the optical communication system to use the selected error correction ~~code~~ algorithm comprises providing information associated with the selected error correction ~~code~~ algorithm to a transmitter of the received optical signal.

40. (Currently Amended) An optical communication system, comprising:

means for measuring a parameter of an optical signal received in the optical communication system, wherein the parameter is indicative of an error rate of data contained in received optical signals;

means for selecting an error correction ~~code~~ algorithm from a predetermined set of error correction ~~codes~~ algorithms based on the measurement; and

means for configuring the optical communication system to use the selected error correction ~~code~~ algorithm.

41. (Currently Amended) The system of claim 40, wherein the predetermined set of error correction ~~codes~~ algorithms includes a selection of no error correction coding.

42. (Original) The system of claim 40, wherein the parameter is a power level of received optical signals.

43. (Currently Amended) The system of claim 40 wherein the means for configuring comprises:

means for encoding data to be transmitted in an optical signal according to the selected error correction ~~code~~ algorithm;

means for providing to an intended receiver of the optical signal an indication of the selected error correction ~~code~~ algorithm; and

means for transmitting the encoded data.

44. (Currently Amended) The system of claim 40 wherein the means for configuring comprises means for providing information associated with the selected error correction ~~code~~ algorithm to a transmitter of the received optical signal.